

ADDENDUM TO ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR THE ARROYO TOAD

January 2001

INTRODUCTION

In December 1994 the U.S. Fish and Wildlife Service (the Service) listed the Arroyo southwestern toad (*Bufo microscaphus californicus*) as an endangered species in California under the Endangered Species Act of 1973 (the Act). In addition, the Service published the proposed designation of critical habitat for the Arroyo southwestern toad in June 2000 and opened a period of public comment until August 7, 2000 (65 FR 36512). Because the Act also calls for an economic analysis of the critical habitat designation, the Service released a *Draft Economic Analysis of Critical Habitat for the Arroyo Southwestern Toad* for public review and comment in November 2000.¹

After evaluating public comments submitted on the proposed rule, the Service made revisions to the critical habitat designation for the Arroyo southwestern toad (hereafter "the toad"). This Addendum addresses the implications of these revisions for the conclusions in the *Draft Economic Analysis*. Public comments specific to the *Draft Economic Analysis* are also addressed in this Addendum. In addition, certain topics addressed in the *Draft Economic Analysis* were revisited and additional data were gathered. In summary, the information presented in this Addendum results from:

- Changes to the critical habitat designation;
- Public comments on the *Draft Economic Analysis*; and
- Additional research conducted after publication of the *Draft Economic Analysis*.

This addendum incorporates the latest available information regarding the revised critical habitat designation rule for the toad. During the preparation of the Addendum, the Director of the Service was informed of the changes made as a result of comments and revisions to the *Draft Economic Analysis*.

¹Copies of the Draft Economic Analysis for the toad can be accessed through the following web site: http://www.r1.fws.gov/news/toadnew_rev10_12.pdf or by writing to the Field Supervisor, U.S. Fish and Wildlife Service, 2394 Portola Rd., Suite B, Ventura, CA 93003.

IMPLICATIONS AND REVISED ESTIMATES FOR THE DRAFT ECONOMIC ANALYSIS

The following sections describe the implications for the *Draft Economic Analysis* (hereafter, DEA), based on changes made to the proposed designation, public comments, and additional research. When applicable, section references to the DEA are included. This Addendum is not intended as an exhaustive response to the comments submitted on the DEA. Instead, this Addendum offers clarification and new information on the economic analysis. In particular, we address those comments that refer to potential economic impacts of the designation rather than broader policy issues or concerns over the biological approach raised in the public comments.

CRITICAL HABITAT UNITS

The Service has substantially revised the critical habitat designation; 182,360 acres are being designated in the final rule, a 62 percent reduction from the 478,400 acres originally proposed. Most of this reduction was due to the availability, in the final determination, of more detailed GIS coverages that allowed the Service to reduce the minimum mapping unit from 1 km to 250 m UTM² grid squares. This resulted in more refined critical habitat boundaries that exclude many areas which do not contain the primary constituent elements for Arroyo toads. In addition, some unit boundaries were changed based on a re-analysis of issues brought up during the public comment period. Throughout the decision-making process the Service also considered the costs of including areas versus the cost of excluding them.

Socioeconomic Profile of the Critical Habitat Areas (Section 2.3.2 of DEA)

Additional Information provided by the City of Pasadena

The City of Pasadena submitted detailed comments and additional information pertaining to the proposed critical habitat designation. First, the City provided additional socioeconomic data that describe areas in and around the critical habitat designation (with reference to Exhibit 2-6³ of the DEA). In 1990, Pasadena had a total of 24,962 detached housing units; by 2000, detached housing units totaled 25,057, which represents an annualized growth rate of 0.38 percent. The housing growth of Pasadena is substantially lower than most of the other counties highlighted in the DEA.⁴ Much

²Universal Transverse Mercator (UTM) coordinates measure in meters east and north from two perpendicular reference baselines. All USGS 1:250,000 and 1:100,000 topographic maps carry a full UTM grid.

³The figures in Exhibit 2-6 of the DEA are absolute: the "(1,000s)" unit categorization in the columns for housing units is incorrect.

⁴California Department of Finance. *City/County Population and Housing Estimates 1991-2000, with 1990 census counts*. Sacramento, California, May, 2000. Accessed through: <http://www.dof.ca.gov/html/Demograp/E-5text.htm>

of the city's residential and commercial areas have already been developed, accounting for this relatively low growth rate.

Comments were also submitted regarding the economic impact of the proposed designation on the Devil's Gate Reservoir area, for which the City is to receive \$2.86 million in funding under a county bond measure to implement improvement projects in the Hahamongna Watershed Park (previously Oak Grove Park). The City reports that over \$500,000 has already been spent to perform baseline biological inventories as part of the habitat restoration plan to supplement the Arroyo Seco Master Plan. This Addendum maintains that costs incurred by local or state governments in implementing conservation plans are not spurred by the critical habitat designation and hence should not be attributed to the designation (i.e., costs would be incurred in the absence of critical habitat). With regard to the impact on the Hahamongna Watershed Park, the cost of an informal consultation which the city alludes to has been accounted for in the DEA. The Service anticipates that any delays resulting from Section 7 consultations are unlikely to take more than a few months.⁵

The Raymond Basin Management Board is another stakeholder in the critical habitat designation, serving as a water authority for the aquifer supplying drinking water to the cities of Pasadena, Alhambra, Arcadia, Sierra Madre, La Canada Flintridge and San Marino, as well as several unincorporated communities in Los Angeles County. In addition, a few other stakeholders have submitted comments pertaining to the remediation efforts underway around the Raymond Basin. These are addressed in a later section of this Addendum.

Additional Information Provided by Rancho Mission Viejo

Rancho Mission Viejo (RMV), a private housing community, submitted comments pertaining to projected housing growth within Orange County. RMV provides an estimate of 21,000 new housing units to be constructed in their vicinity by the year 2025.⁶ Few details are available on the likely location and density of the new units, however, since no formal plans for such projects have been received by the Orange County planning authorities. Moreover, the Service believes that much of the area within the critical habitat designation in this region is too steep (i.e. gradient over 20 percent) for housing development, and therefore the designation is not likely to affect projected developments.⁷

⁵The bond measure stipulates that projects associated with the funds must be completed by 2016.

⁶Center for Demographic Research, California State University at Fullerton. *Orange County Projections 2000*.

⁷Review of critical habitat designation maps and topographic maps for RMV property.

Impacts Related to Water Distribution Organizations (Section 4.2.2 of DEA)

Comments were received from several municipal water districts and water distribution collectives regarding the effect that the designation may have on their water management practices and related costs. Most concerns raised by water management authorities referred to areas which have been excluded in the final critical habitat designation. Additional issues associated with water management practices are discussed below.

Questions were raised over possible delays in the cleanup of the Jet Propulsion Laboratory (JPL) CERCLA site that spans parts of Pasadena, Altadena, and La Canada Flintridge.⁸ This site is situated in the Raymond Basin, and encompasses an aquifer that provides groundwater for surrounding communities. The Service recognizes the immediacy of these environmental cleanup operations and asserts that the designation of critical habitat will have no effect upon the mitigation schedule at the JPL site.⁹ Thus, additional costs due to delay of mitigation activities are not likely to occur.

Numerous municipal water districts believe that the DEA underestimates the cost of incremental section 7 consultations that may be required due to the toad designation. The cost estimates presented in the DEA were developed through a review of consultation files from numerous field and regional offices, in conjunction with expert opinion of Service biologists.¹⁰ The method used to predict future costs considers the Service's estimate of the number of anticipated consultations due to toad habitat, as well as the level of effort typically expended by the Service, the Action agency, and the applicant during the consultation process. Actual costs of individual incremental consultations incurred due to toad habitat may be lower or higher than these estimates, but the aggregate estimate presented in the DEA is based upon the best available information specific to this designation.

In the section that follows, comments received by the following organizations are addressed more specifically: Coachella Water Valley District, Metropolitan Water District, Los Angeles County Department of Public Works, and the Sweetwater Authority.

Metropolitan Water District

⁸Comprehensive Environmental Response, Compensation, and Liability Act (also referred to as "Superfund").

⁹Personal communication with supervising biologist, U.S FWS, January 4, 2001.

¹⁰The cost estimates presented in the DEA rely on records from Section 7 consultations that address both listing and critical habitat designation requirements. Since critical habitat has been finalized for only about ten percent of total listed species, the majority of those historical consultations were performed under listing requirements.

The Metropolitan Water District (MWD) supplies water to the Coachella Valley and the southern California coastal plain. The MWD submitted specific comments regarding the Whitewater River Area in Map Unit 22. MWD states that although the land they manage was not occupied by the toad, critical habitat designation may require them to participate in additional section 7 consultations. In addition, MWD believes that designation of critical habitat would necessitate a change in the amount and timing of water deliveries and possibly require the construction of new water delivery facilities. The MWD is also concerned about the effect of the designation upon the delivery of water from Pyramid, Castaic, and Silverwood Lake State Water Project reservoirs. Specifically, the creeks below these reservoirs have all been designated as critical habitat. If the Service requires a modification to the reservoir outflow into these creeks, this could potentially reduce the volume of water stored behind the dam, thus reducing the amount of water delivered to the MWD and the energy output from the reservoirs.

In the final designation of the Whitewater River (Unit 22) the waterway below the intersection of the Colorado River Aqueduct (CRA) and the Whitewater River has been excluded. This change reflects a determination that portions of the river below the aqueduct are unsuitable for Arroyo toads because of channelization below Interstate 10 and the erratic nature of water flows in this stream reach. The exclusion of the areas below the CRA, will allow the MWD and the Coachella Valley Water District to continue the water conservation management practices they had used in the past.

The final designation has included sections of Piru Creek below Pyramid Lake, (map unit 5) Castaic Creek below Castaic Lake (map unit 6), and the West Fork of the Mojave River below Silverwood Lake (map unit 21). These lakes are owned and operated by the California Department of Water Resources and are used to store water which is later delivered to different municipal water districts and used to generate electricity.¹¹ It is possible that the Service might require changes in the LACDPW discharge practices during certain seasons (i.e. requiring a sustained releases of water that mimic the natural flow of the river). The Service will consider water availability concerns and any limitations to energy production in arriving at proposed water management changes. Since these creeks are occupied by the toad, any costs due to project modifications would be due to the listing of the species and not the designation. Consultations have already been conducted at Pyramid Lake, and the stream flow has been adjusted to accommodate the toad. No consultations are anticipated to occur on Castaic Lake,¹² while Silverwood Lake is currently under consultation with the Army Corps of Engineers regarding the Rancho Los Flores housing development. However, there has been no discussion of changes in streamflow associated with this consultation.

Los Angeles County Department of Public Works

The Los Angeles County Department of Public Works (LACDPW) submitted comments indicating that the designation of critical habitat will create costs that are not addressed by the DEA, and that the designation will diminish their ability to effectively manage water resources within the

¹¹The nexus for these lakes are the permits from the Federal Energy Regulatory Commission.

¹² Personal communication with Senior Biologist, Ventura field office, January 2001

county. First, LACDPW is concerned that critical habitat will increase costs associated with applying for incidental take permits. They also propose that cost estimates should include inflation as well as the associated cost and risk associated with potential changes in the seasonality of their project activities. Finally, the LACDPW believes that the ability to conserve water and mitigate flood hazards will be compromised in the Big Tujunga Wash and the Santa Clara River (both in Map Unit 6). Each of these issues is addressed below.

The LACDPW believes that the cost of applying for an incidental "take" permit should be included in the estimate of economic impacts due to the designation of critical habitat. Under Section 10 of the Act, an incidental take permit may be granted to private landowners, state or local governments, or other non-Federal landowners who wish to conduct activities on their land that might incidentally harm (i.e. "take") a listed species."¹³ Typically, incidental take permits are issued as the outcome of a formal section 7 consultation process, or as part of the process of establishing a Habitat Conservation Plan. The Service anticipates that, in the event LACDPW would need to obtain an incidental take permit, this would be due to incidental effects of their projects on toads inhabiting LACDPW lands rather than because of critical habitat designation.¹⁴ Thus, this Addendum finds that any costs incurred by LACDPW for acquiring incidental take permits are appropriately contributed to the listing of the toad, and not to the critical habitat designation.

With regard to the potential for delays and/or changes to the seasonality of LACDPW's construction and maintenance activities, this Addendum anticipates that such delays or modifications will be minimal. The Service anticipates any associated costs due to changes in the timing of project maintenance will also be minimal.

Finally, the land surrounding the Santa Clara River has been removed from the final designation. Thus, there will be no additional impact upon LACDPW operations in this area. However, land surrounding the outflow basin below the Big Tujunga Wash is included within the final designation. The Service categorizes these lands as largely unoccupied by the toad. Therefore, the Service anticipates that the LACDPW will be able to conduct flood control activities as usual, and there will be no increased costs due to flood hazards or additional purchases of flood insurance. It is possible that the Service might require changes in the LACDPW discharge practices in Big Tujunga Creek (map unit 7) during certain seasons (i.e. requiring smaller, sustained releases of water that mimic the natural flow of the river, rather than sporadic releases of large quantities of water).¹⁵ This change could result in greater loss of water due to evapotranspiration and lower aquifer recharge, decreasing the efficiency of the water conservation methods. Since this potential change in water management practice depends upon both timing and climatic conditions, the cost associated with such a change is difficult to determine in the absence of additional project-specific information. Thus, at this time no estimates of the economic impact of critical habitat in LACDPW operations

¹³ 16 U.S.C. § 1531(b) 1994.

¹⁴ Personal communication with Senior Biologist, Ventura field office, January 2001.

¹⁵ The nexus for the Big Tujunga Wash is through the Special Use Permit from the United States Forest Service.

in or near the Big Tujunga Creek are provided. Furthermore, the Big Tujunga Creek is occupied by both the toad¹⁶ and the Santa Ana Sucker (*Catostomus santaanae*) which is listed as Threatened.¹⁷ Therefore, costs associated with any changes to water flow regimes might be incurred regardless of critical habitat designation for the toad.

Coachella Valley Water District

The Coachella Valley Water District (CVWD) is concerned that the designation of critical habitat on the Whitewater River will cause them to incur costs ranging from \$108 million to \$158 million for the curtailment of entitlement water transfers from the Colorado River Aqueduct reducing the recharge of the Coachella Valley groundwater basin, as well as obstruction of progress on the development and implementation of the Coachella Valley Water Management Plan. This land has not been included in the final designation and thus no additional costs will be incurred (for a more detailed description see the Metropolitan Water District section regarding the Whitewater River).

Sweetwater Authority

In order to provide an estimate of the costs associated with performing a section 7 consultation, the DEA published an example of the cost incurred by a water authority in southern California who has undergone consultations due to the listing of different endangered species. In particular, the DEA provided cost data submitted by Sweetwater Authority, which had incurred costs for a section 7 consultation addressing multiple species listings (Arroyo toad, least Bell's vireo, and California gnatcatcher). Sweetwater Authority submitted comments on the DEA which corrected their initial cost quotation: the actual cost incurred by Sweetwater for the combined consultation on these three listings is \$39,000 (not including staff consulting and administrative support).^{18,19} Neither this value nor the updated value was used in the estimation of the section 7 consultation costs for the designation of critical habitat for the toad. The total cost that may be incurred by Sweetwater and other water authorities for future consultations triggered by critical habitat for the toad, however, will vary according to the number, duration, and complexity of such consultations.

¹⁶ *Final Designation of Critical Habitat for the Arroyo Toad*. Forthcoming, spring, 2001.

¹⁷ *Threatened Status for the Santa Ana Sucker* 65 FR 19686 - 19698

¹⁸ Note that this figure represents the total cost of consulting on all three species; thus, this sum total is not attributable to the listing of, or critical habitat designated, for any one species.

¹⁹ The initial cost estimate submitted by Sweetwater for this consultation was \$54,400. Sweetwater also submitted corrections to the costs of various project modifications that resulted from this consultation. However, because modifications are highly project-specific, costs associated with changes to a specific project may not be an accurate indicator of expected modification costs.

Farming and Grazing Impacts Section (4.2.3 of DEA)

The California Farm Bureau Federation (hereafter "the Farm Bureau") notes that farming plays a significant role in the economy of southern California and is responsible for the preservation of vast acreage of open space. In the eight counties where critical habitat is being designated for the Arroyo toad, the annual net income from farming (including corporate farms) is \$2.2 billion.²⁰

Some farming activities occur in floodplains or lowlands containing waterways which have been designated as critical habitat. Some of these farms receive assistance, such as subsidies, from the U.S. Department of Agriculture (USDA), creating a Federal nexus. This Federal action creates the potential for a section 7 consultation. However, the Ventura Fish and Wildlife Office has not consulted with the USDA regarding the effects of its farm programs on the Arroyo toad in the past. The lack of past consultations on this specific issue could be because the USDA may have determined that providing the assistance to farms in this area did not affect the Arroyo toad; the regulations which implement section 7(a)(2) of the Act do not require a Federal agency to contact the Service if it determines that its proposed action will not affect a listed species or critical habitat. Some programs administered by the USDA do not require that it conduct an environmental analysis before administering the aid.²¹

The Farm Bureau is concerned about the effect of the designation of critical habitat on grazing activities. Specifically, the Bureau feels that designation of critical habitat for the toad may trigger requirements for new section 7 consultations that would not have occurred under the listing. If USDA seeks to consult with the Service on activities or projects on grazing lands in cases where they would not have done so under the listing alone (most likely in areas where the toad occurrences have not been recorded in the past), the Bureau would incur incremental consultation costs. We expect that, on a per consultation basis, these costs would be in the same range as those presented in the DEA.

Several farming organizations have raised concerns regarding the potential long-term costs associated with third party challenges. That is, third parties may use the designation of critical habitat as a legal tool to halt or otherwise influence activities within the designated area. The Service recognizes that it is possible that third parties may elect to sue the Service over future decisions regarding whether or not an activity adversely modifies critical habitat. However, this economic analysis does not address the potential economic implications of third party lawsuits because of the unknown scope of such lawsuits.

²⁰U.S. Department of Commerce, Bureau of Economic Analysis: Farm Income and Expenses <http://www.bea.doc.gov/bea/regional/reis/ca45/>.

²¹ The Ventura field office has not been made aware of any actions of this nature. Therefore, any change in the consultation relationship between the Service and the USDA with regard to its farm programs and the Arroyo toad would be more likely to result from an effort by the Service to contact the USDA regarding these programs than from the designation of critical habitat.

Impact on the Mining Industry (Sections 4.1 and 4.3 of the DEA)

Gold Prospecting and Small Mining Business

Comments received from the Gold Prospectors Association of America assert that the DEA failed to give substantive coverage to impacts borne by small gold prospecting enterprises as a result of critical habitat designation. The Service recognizes its responsibility to identify and address the impact of its regulatory actions on small businesses. Therefore, the DEA included data on small businesses that exist on or near the critical habitat designation. Exhibit 4-7 of the DEA, for example, provides data on small-scale mining operations by county including number of employees, annual payroll, total establishments per industry and a breakdown of the facilities by the number of employees.²²

Revisions to the proposed critical habitat boundaries will significantly reduce the number of small-scale mining establishments within the designation. In Santa Barbara County, there may be some additional consultations pertaining to small-scale mining operations, which have already been included in the DEA.²³ However, the Service does not anticipate that any consultations with these operations would result in "significant impact" as defined by the Small Business Administration.²⁴ This conclusion is based on past interactions between the Service and small-scale prospectors and miners.²⁵

Impact on Sand and Gravel Mining (Section 4.1.2 in DEA)

Union Asphalt Inc. submitted comments pertaining to the economic impact on sand and gravel mining along the Sisquoc River channel. All of this area for which concerns were raised have been excluded from the final designation.

Union Asphalt also provided data on its Santa Maria operation and provided economic impact estimates based on a complete closure of the facility and related multiplier effects on the economy. However, this site has also been excluded from the revised designation. Thus, no impacts

²²Data collected from the U.S. Census Bureau. *1998 County Business Patterns Economic Profiles*. Washington DC: U.S. Census Bureau.

²³There are currently 27 such establishments within this geographic area that have less than 19 employees and an additional five establishments with 20 to 99 employees.

²⁴The Small Business Act, which established the Small Business Administration (SBA), defined a small business to be one that is "independently owned and operated and which is not dominant in its field of operation." The Act states that in determining what is a small business, the definition shall vary from industry-to-industry to the extent necessary to properly reflect industry differences. Details regarding SBA guidelines for defining small businesses can be found at <http://www.sba.gov/size/Guide.html>.

²⁵Personal communication, staff biologist, U.S. FWS, field office, Ventura, CA., January 3, 2001.

on this facility will result from critical habitat designation for the toad.

Impacts on Private Land (Sections 4.1.3 of DEA)

Housing growth

Several comments on the DEA refer to a study on projected housing needs for southern California.²⁶ According to this study, which was commissioned by the California Department of Housing and Community Development, the Greater Los Angeles region (Los Angeles, Orange, Riverside, San Bernardino, Ventura and Imperial counties) is expected to grow by 3.1 million residents between 1997 and 2010 and then again by 2.6 million residents between 2010 and 2020. This growth will require an additional 1.4 million households by 2010, and an additional 977,000 households by 2020. Similarly, San Diego County is projected to increase by 678,000 residents between 1997 and 2010 and then by 476,000 between 2010 and 2020, which will also require a substantial increase in the number of new housing units over this time period.

Even with this large projected increase in population throughout southern California, the Service finds that the designation of critical habitat for the toad is likely to have minimal impact on housing development, given both the terrain of the designated areas and existing baseline requirements which limit the potential for further development. For example, it is likely that these counties contain significant portions of land which are too rugged for housing developments. Additionally, a majority of the final designation is located on public lands which are not currently zoned for development. Overall, the Service anticipates few instances where the toad designation will require additional consultations or project modifications for housing developments above and beyond those required under the listing.

Critique of the Economic Impact Study Submitted With Public Comments

Public comments received on behalf of the Foothill/Eastern Transportation Corridor, Raymond Basin Management Board, and the Newhall Land and Farming Valencia Company refer to a study conducted in response to the DEA.²⁷ While this study makes use of data sets pertaining to housing and employment growth projections and is more substantive than earlier studies, this Addendum finds a few key limitations of the analysis presented in the respondent's study.²⁸ Our concerns with the estimates provided by this report are as follows:

- The respondent's study references Biological Opinions issued by the Service

²⁶*Raising the Roof- California Housing Development Projections and Constraints 1997-2020.* <http://www.hcd.ca.gov/hpd/hrc/rtr/> on January, 2, 2001.

²⁷Study commissioned by Nossman, Guthner, Knox and Eliot, LLP: Janczyk, Joseph T. December, 2000. *The Economic Impacts of the Proposed Critical Habitat for the Arroyo Southwestern Toad.* Orange County CA: Empire Economics L.L.C.

²⁸ Estimates derived from data generated by the Southern California Association of Governments (SCAG) and the San Diego Association of Governments (SANDAG).

under the listing of the Desert Tortoise (*Gopherus agassizii*), the least Bell's vireo (*Vireo bellii pusillus*) and the Southwestern willow flycatcher (*Empidonax traillii etimus*) as the basis for the assumption that impacts within critical habitat double the obligations of private landowners.²⁹ The Service maintains that Biological Opinions and resultant project modifications issued at the outcome of the section 7 consultation process are species-specific. If listing impacts are to be considered, then historical consultations and project modifications issued by the Service since the 1994 listing of the toad may provide a better measure of species-specific consultation trends, rather than data which reference other listings. Furthermore, the respondent's study did not properly reflect the paucity of consultations pertaining to the toad since its listing. The "incremental" scenarios presented in the report estimate that the toad designation will reduce housing revenues in the region by 1.5 percent, 4.5 percent and 7.5 percent. This assumes that the frequency of and/or extent of project modifications would increase by several orders of magnitude as compared to the baseline listing impacts. With so little case history of project modifications associated with the listing of the toad, we do not believe that these estimates are likely to be accurate predictors of future impacts.

- The analysis presented in the respondent's study focuses on costs associated with lost housing revenues, as opposed to lost profits to developers, which would provide a more appropriate estimate of direct impacts to private development. While we maintain that critical habitat designation is unlikely to halt any development project, even if the profitability of a particular venture were affected by critical habitat, developers would likely substitute another comparable project or location. Therefore, lost profits would be a more appropriate indicator of costs borne by the developer in terms of project delays or modifications due to critical habitat.
- Using input-output modeling, the respondent's study includes estimates of the impacts of toad critical habitat on regional economic output, income, and employment.³⁰ However, this Addendum finds this to be an inappropriate

²⁹ In particular, the following historical Biological Opinions were cited: (1) Biological Opinion on Tequesquite Landfill Flood Protection Levee Project in Riverside County (#1-6-97-F-38) and; (2) Biological Opinion on protecting the Desert Tortoise by removal of a Phillips 140 Coaxial Cable, in San Bernardino and Kern Counties (#1-8-97-F46).

³⁰Input-output (I-O) models can be used to analyze the influence of a change in revenues for one sector of a regional economy (e.g., the construction industry) on the overall economic performance of that region. The cornerstone of an I-O model is a series of "multipliers" which quantify the interrelationships and transfers taking place between industries. For example, each dollar of revenue accruing to the construction sector circulates throughout the regional economy, in the form of construction workers' expenditures on food, housing, etc. By employing these

application of input-output modeling, for the following reasons³¹:

- First, the study does not credibly establish that critical habitat will slow or impede local development substantially enough to generate discernible effects on the regional economy. The study assumes that a certain percentage of new housing starts will be halted due to toad critical habitat, using historical project modifications as the basis for this range. As mentioned previously, however, decisions and outcomes of any given consultation are highly case-specific and cannot be transferred to another context. Thus, it is not clear that the use of I-O modeling is warranted in this case.
- Second, even if impacts on individual development projects do occur, the impact on the regional economy of southern California would likely be minimal because of the availability of *substitution possibilities*: development and construction activity would shift to alternative sites (or simply undergo modification at the existing site). As a result, the net effect on the regional economy is overstated in the respondent's study. Furthermore, the use of California state construction multipliers is inappropriate for the toad designation area since there are few timber-related industries in the region.
- The cost estimates presented in the respondent's study are presented as an aggregate over twenty years rather than as an annualized cost utilizing a discount rate (which is the conventional method for calculating any long-term cost projection under conditions of uncertainty). Thus, the figures presented are misleading and should not be interpreted as net present value, as has been done by the respondents.

Finally, the authors of the report acknowledge that "...the amount of employment/housing that will actually be impacted by the Arroyo Toad critical habitat designation depends upon the outcome of regulatory decisions by the Service and other agencies under the ESA....consequently, the actual impact of the Arroyo Toad critical habitat will not be know until all of these properties are, in fact, fully developed." It is for this reason that the DEA and this Addendum rely on the opinions of field biologists and Service decisionmakers to arrive at estimates for the extent of impact and associated costs. Thus, we do not believe that the Service should adopt the estimates presented in the third-party study.

multipliers, I-O models provide estimates of the total contribution of an individual industry to regional income, output, and employment.

³¹I-O modeling may be appropriate for some situations involving critical habitat. For example, the Service utilized an I-O methodology for the economic impact study of the critical habitat designation for the northern spotted owl. In this instance, such modeling was appropriate, given the dominant role played by the affected industry in the regional economy.

Impacts on Tribal Lands (Section 4.1.4 of DEA)

The Service has elected to exclude, from the final critical habitat designation, land that falls within the La Posta Indian Reservation. Executive Order 13175, signed by President Clinton on November 6, 2000 (subsequent to the public comment release of the DEA), is interpreted by the Service to increase the considerations whereby critical habitat may be designated on tribal land.³² As part of its trust responsibility, the Service has already conferred with the Soboba Tribal Reservation, the Barona and Vieja Indians of the Capitan Grande Reservation and the Vieja and Sycuan Indians regarding the designation of critical habitat in Units 9, 17 and 18.

SUMMARY OF IMPLICATIONS

The total area of critical habitat designated for the Arroyo toad has been reduced by 62 percent, subsequent to the public comment period of the DEA. Many of the concerns raised by stakeholders with regard to the estimates of economic impact presented in the DEA have been resolved by the final designation.

Respondents to the DEA have raised concerns regarding the overall number of incremental consultations that are estimated. Since Section 7 consultation decisions are made by Service staff biologists, we feel that the most reliable and appropriate method for estimating consultation numbers is to elicit primary estimates from the Service field offices. Service field biologists estimated the number of incremental consultations by considering the following factors and tabulating the responses:

- The percentage of a unit known to be occupied;
- The potential for the presence of other listed species;
- The potential number of future projects with federal nexus; and
- Previous consultations in the area for similar types of activities.

Based on an analysis of these factors, field biologists proposed estimates for number of consultations over the next ten years which could be attributable solely to critical habitat. It is important to keep in mind that since the species was listed in 1994, the Carlsbad field office has reported only 58 formal consultations (about nine per year) in total as a result of the listing.³³ Most of the area that has been designated as critical habitat for the toad has recorded occurrences of toads, and thus consultations may be attributed to the species listing. The Service does not anticipate any major changes in their decision-making process for consultations. Although there has been a substantial reduction in acreage between the proposed and final designations, the number of units

³² Executive Order 13175. "Consultation and Coordination with Indian Tribal Governments." *Federal Register* Vol. 65, No. 218. p. 67249, Nov. 6, 2001.

³³ Personal communication with field biologists at the U.S. Fish and Wildlife Service, Carlsbad field office, January, 2001.

are still the same and in most cases the number of stakeholders involved per unit has not changed. Therefore, the Service does not project any changes to the number of anticipated consultations due solely to critical habitat which were summarized in Exhibit 4-6 of the DEA (Exhibit A-1 below)

<p style="text-align: center;">Exhibit A-1</p> <p style="text-align: center;">Incremental Costs Due to Critical Habitat Designation for the Southwestern Arroyo Toad</p>			
Critical Habitat Region	Estimated Number of Incremental Consultations Due to Critical Habitat Designation (2000-2010)	Lower range estimate of consultation costs	Upper range estimate of consultation costs
Pacific mid-coast area	14	\$159,600	\$257,600
Southern California area	14	\$159,600	\$257,600
Total	28	\$319,200	\$515,200
<p>Sources: Incremental consultation estimates based on data obtained from U.S. Fish and Wildlife staff, Carlsbad, CA, and Ventura, CA. Cost estimates obtained from internal IEc analysis.</p> <p>Note: This contains data and cost estimates identical to those presented in Exhibit 4-6 of the DEA.</p>			